

McGinn & Gibb, PLLC
A PROFESSIONAL LIMITED LIABILITY COMPANY
PATENTS, TRADEMARKS, COPYRIGHTS, AND INTELLECTUAL PROPERTY LAW
8321 OLD COURTHOUSE ROAD, SUITE 200
VIENNA, VIRGINIA 22182-3817
TELEPHONE (703) 761-4100
FACSIMILE (703) 761-2375; (703) 761-2376

**APPLICATION
FOR
UNITED STATES
LETTERS PATENT**

**APPLICANT'S: HIDEHEI KAGEYAMA
 TADASHI KEDA**

FOR: CONTAINER

DOCKET NO.: No. 56

CONTAINER

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a container.

Description of the Related Art

A widely known container for containing, for example, mechanical pencil leads includes a container body having an opening, and a lid body that can open and close the opening of the container body, the lid body being removable from the container body. However, such a container cannot be operated with one hand.

Thus, several containers that can be operated with one hand are proposed (for example, Japanese Patent Laid-Open No. 10-272885 (JP10272885A) and Japanese Utility Model Publication No. 61-34156) (JP6134156U) .

In Japanese Patent Laid-Open No. 10-272885, a container includes a container body, a container cover, and a lid body. The container cover has a straight guide groove and a bent opening/closing guide groove. An engagement protrusion provided on the container body movably engages the straight guide groove via a through hole provided on a protruding portion of the lid body, and also an opening/closing support protrusion provided on the protruding portion of the lid body movably engages the opening/closing guide groove. When the container body is linearly slid with respect to the container cover,

the engagement protrusion of the container body moves along the straight guide groove, the lid body that the engagement protrusion penetrates follows the movement of the engagement protrusion, and the opening/closing support protrusion of the lid body is guided to the opening/closing guide groove of the container cover. Because the opening/closing guide groove is bent, the lid body is rotated to open an opening of the container body.

In Japanese Utility Model Publication No. 61-34156, a container includes a lead containing cylinder and a lid body rotatably and concentrically attached to the lead containing cylinder. A lead guiding groove for separately placing one of leads in a taking-out position is formed inside the lead containing cylinder, and a lead protruding hole is bored in the lid body. The lid body is rotated with respect to the lead containing cylinder to align the lead protruding hole with the lead guiding groove, then the lead separately placed by the lead guiding groove can be taken out of the lead protruding hole. If the lid body is rotated with respect to the lead containing cylinder, and the lead protruding hole is not aligned with the lead guiding groove, the lead cannot be taken out of the lead containing cylinder.

However, in Japanese Patent Laid-Open No. 10-272885, a configuration for rotating the lid body is complex. In Japanese Utility Model Publication No. 61-34156, the lid body has to be concentrically rotated with respect to the lead

containing cylinder, and such a rotating operation is hard to perform with one hand.

SUMMARY OF THE INVENTION

The present invention is achieved in view of the above described problems, and has an object to provide a container that can be easily configured and has good operability when opened and closed with one hand.

In order to achieve the above described object, a container according to the present invention includes a container body having an opening, and a lid body that can open and close the opening of the container body, wherein the container body has, near the opening, a journaling portion that supports the lid body rotatably around an axis orthogonal to an opening surface of the opening, and the lid body has a journaled portion that is journaled by the journaling portion, and a lid portion, and the lid body rotates around the journaling portion to allow the lid portion to move to a position for covering the opening and a position for exposing the opening.

The lid body can be rotated with respect to the container body by holding the container body with one hand and touching the lid body with a finger or thumb, thus allowing easy opening and closing with one hand, and increasing operability. The container can be constituted by the container body and the lid body, and can be easily configured, thus reducing the number of components.

The journaling portion can be provided in parallel with the opening. According to this configuration, the lid body rotates around the journaling portion to allow the lid portion to move between the position for covering the opening and the position for exposing the opening.

The lid body can be noncircular when viewed from a direction orthogonal to the opening surface. According to this configuration, the lid body can be operated by touching a part of the noncircular lid body with the finger of thumb, thus increasing operability. The noncircular shape may include a shape having a tapered sharp portion, an elliptical shape, or an oval shape, and the lid portion may be positioned in the sharp portion or an end of the elliptical or oval shape.

The container body has a vertical wall formed along an edge of the opening, and when the lid portion is in the position for covering the opening, a part of the lid body is placed along a part of the vertical wall. Because the part of the lid body is placed along the part of the vertical wall, the lid body and the container body can be integrally constituted when the lid body is closed. Also, the lid body can be lockably connected to the vertical wall. According to the configuration, the lid body, when closed, can be reliably kept in a closed state.

The container can further include rotation range controller for controlling a rotation angle of the lid body.

The rotation range controller can include a protrusion provided on one of the journaling portion and the journaled

portion, and a notch provided on the other of the journaling portion and the journaled portion.

The present disclosure relates to subject manner contained in Japanese Patent Application No. 2003-145477, filed on May 22, 2003, which is expressly incorporated herein by reference in its entirety.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a container according to a first embodiment of the invention when an opening of a container body is closed;

FIG. 2 is a perspective view of the container according to the first embodiment of the invention when the opening of the container body is opened;

FIG. 3 is a vertical sectional view of the container according to the first embodiment of the invention;

FIG. 4 is a sectional view taken along the line 4-4 in FIG. 3;

FIG. 5 is a view corresponding to FIG. 4 when the opening of the container body is opened;

FIG. 6A is a side view of the container body;

FIG. 6B is a sectional view taken along the line 6B-6B in FIG. 6C;

FIG. 6C is a view taken in the direction of the arrow 6C of FIG. 6A;

FIG. 7A is a sectional view taken along the line 7A-7A in FIG. 7B;

FIG. 7B is a view taken in the direction of the arrow 7B of FIG. 7A;

FIG. 8 is a vertical sectional view of a container according to a second embodiment of the invention;

FIG. 9 is a sectional view taken along the line 9-9 in FIG. 8;

FIG. 10 is a view corresponding to FIG. 9 when an opening of a container body is opened;

FIG. 11 is a vertical sectional view of a container according to a third embodiment of the invention;

FIG. 12 is a sectional view taken along the line 12-12 in FIG. 11;

FIG. 13 is a sectional view taken along the line 13-13 in FIG. 11; and

FIG. 14 is a view corresponding to FIG. 13 when an opening of a container body is opened.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Now, embodiments of the invention will be described with reference to the drawings.

(First Embodiment)

FIGS. 1 and 2 are perspective views of a container according to a first embodiment of the invention, and FIG. 1 shows a state where an opening of a container body is closed, whereas FIG. 2 shows a state where the opening of the container body is opened.

In FIGS. 1 and 2, a container 10 includes a container body 12 having an internal space, and a lid body 14 that can open and close an opening 12a of the container body 12. The container body 12 and the lid body 14 are noncircular when viewed in a longitudinal direction of the container 10 orthogonal to an opening surface of the opening 12a. In this embodiment, the noncircular shape has a circular portion and a tapered sharp portion of a triangle integrally formed into a comet shape.

The container body 12 is closed at its bottom as shown in FIGS. 3 and 6, and has, at its top opposite from the bottom, the opening 12a and a journaling portion 12b adjacent to the opening 12a. The journaling portion 12b is provided in parallel with the opening 12a, and forms a cylindrical shape having a notch 12c on one side. An axis of the journaling portion 12b is parallel to the direction orthogonal to the opening surface of the opening 12a. The opening 12a is positioned in the sharp portion of the noncircular shape.

On an outer peripheral surface of the journaling portion 12b, a circumferentially extending protruding portion 12d is formed. The container body 12 has a vertical wall 12e formed along an edge of the opening 12a. The vertical wall 12e is bent along a tip edge of the sharp portion of the triangle, and a locking protrusion 12f is formed on the bent portion.

The lid body 14 includes, as shown in FIGS. 3 and 7, a cylindrical journaled portion 14a, a lid portion 14b that closes the top, and a locking piece 14c extending from the

journaled portion 14a or the lid portion 14b tangentially with respect to the journaled portion 14a. The lid portion 14b is positioned on the side of the sharp portion. On an inner peripheral surface of the journaled portion 14a, an annular recess 14e that engages the protruding portion 12d of the journaling portion 12b of the container body 12 is formed, and thus the journaled portion 14a rotatably engages the journaling portion 12b. On the inner peripheral surface of the journaled portion 14a, a protrusion 14f protruding radially inward is formed, and the protrusion 14f is placed in the notch 12c of the journaling portion 12b.

On a tip of the locking piece 14c, a locked portion 14d is formed so as to be locked to the locking protrusion 12f of the container body 12, and thus the locking piece 14c is lockable to the vertical wall 12e.

The journaled portion 14a of the lid body 14 is journaled by the journaling portion 12b of the container body 12 so that the lid body 14 can rotatably swing around the journaling portion 12b of the container body 12. A rotation range is a range of angles through which the protrusion 14f can move within the notch 12c. The protrusion 14f and the notch 12c constitute rotation range controller. It is of course possible that a protrusion provided on the journaling portion 12b of the container body 12 and a notch provided on the journaled portion 14a of the lid body 14 similarly constitute rotation range controller.

The container 10 configured as described above operates as follows. As shown in FIGS. 1 and 4, in a state where the lid body 14 closes the opening 12a of the container body 12, the locking piece 14c is placed along a part of the vertical wall 12e, the locked portion 14d on the tip of the locking piece 14c is locked to the locking protrusion 12f of the vertical wall 12e, and the lid body 14 and the container body 12 are integrally assembled. The lid portion 14b of the lid body 14 covers the opening 12a so that the contents of the container body 12 are safely contained in the internal space of the container body 12.

Then, the lid body 14 is rotated by holding the container body 12 and pushing the locking piece 14c of the lid body 14 with one finger (for example, a thumb). The lid body 14 is noncircular as described above, and can be operated by touching the sharp portion, thus the lid body 14 can be easily rotated around the journaling portion 12b.

The protruding portion 12d and the annular recess 14e preferably engage with little play therebetween. Thus, a friction force generated between the lid body 14 and the container body 12 stops the lid body 14 at the position where the hand is removed after the lid body 14 is rotated. When the lid body 14 is further rotated, the protrusion 14f moves to one of ends of the notch 12c to abut against one of wall surfaces of the journaling portion 12b as shown in FIG. 5, thus the lid body 14 cannot be further opened. In this state, the lid portion 14b of the lid body 14 moves from the opening

12a to expose the opening 12a. Thereby, the contents can be taken out of or inserted into the container body 12 through the opening 12a.

If the lid body 14 is rotated back to the original position by touching the locking piece 14c with the finger, the lid body 14 can close the container body 12 again.

(Second Embodiment)

FIGS. 8 to 10 show a container according to a second embodiment of the invention.

In this embodiment, a container 20 includes a container body 22 having an internal space, and a lid body 24 that can open and close an opening 22a of the container body 22. The container body 22 and the lid body 24 are noncircular when viewed in a longitudinal direction of the container 20 orthogonal to an opening surface of the opening 22a. In this embodiment, the noncircular shape has a circular portion and a sharp portion of a triangle integrally formed into a comet shape.

The container body 22 is closed at its bottom, and has, at its top opposite from the bottom, the opening 22a and a journaling portion 22b adjacent to the opening 22a. The journaling portion 22b is provided in parallel with the opening 22a, and is a cylindrical recess surrounded by a rib 22e. On a tip of the journaling portion 22b, a notch 22c is circumferentially formed. An axis of the journaling portion 22b is parallel to the direction orthogonal to the opening

surface of the opening 22a. The opening 22a is positioned in the sharp portion of the noncircular shape.

On an inner peripheral surface of the journaling portion 22b, a circumferentially extending protruding portion 22d is formed. A locking protrusion 22f is formed on an edge of the opening 22a of the container body 22.

The lid body 24 includes a cylindrical journaled portion 24a, and a lid portion 24b that covers the opening 22a. The lid portion 24b is positioned on the side of the sharp portion. Further, a plug 26 that closes a top of the lid body 24 may be provided. The plug 26 may be omitted, or the plug 26 and the lid body 24 may be integrally formed.

On an outer peripheral surface of the journaled portion 24a, an annular recess 24e that engages the protruding portion 22d of the journaling portion 22b of the container body 22 is formed so that the journaled portion 24a rotatably engages the journaling portion 22b. On the outer peripheral surface of the journaled portion 24a, a protrusion 24f protruding radially outward is formed, and the protrusion 24f is placed in the notch 22c of the journaling portion 22b.

On a tip of the lid portion 24b, a locked portion 24d is formed so as to be locked to the locking protrusion 22f of the container body 22, and thus the lid body 24 is lockable to the container body 22.

The journaled portion 24a of the lid body 24 is journaled by the journaling portion 22b of the container body 22, and the lid body 24 can rotatably swing around the journaling

portion 22b of the container body 22. A rotation range is a range of angles through which the protrusion 24f can move within the notch 22c. The protrusion 24f and the notch 22c constitute rotation range controller.

As described above, the container 20 configured as described above provides the operation and the advantage similar to those of the first embodiment. As shown in FIGS. 8 and 9, in a state where the lid body 24 closes the opening 22a of the container body 22, the locked portion 24d is locked to the locking protrusion 22f. The lid portion 24b of the lid body 24 covers the opening 22a so that the contents of the container body 22 are safely contained in the internal space of the container body 22.

Then, the lid body 24 is rotated by holding the container body 22 and touching the sharp portion of the lid body 24 with one finger (for example, a thumb), thus the lid body 24 can be easily rotated around the journaling portion 22b.

The protruding portion 22d and the annular recess 24e preferably engage with little play therebetween. Thus, a friction force generated between the lid body 24 and the container body 22 stops the lid body 24 at the position where the hand is removed after the lid body 24 is rotated. When the lid body 24 is further rotated, the protrusion 24f moves to one of ends of the notch 22c to abut against one of wall surfaces of the journaling portion 22b as shown in FIG. 10, thus the lid body 24 cannot be further opened. In this state, the lid portion 24b of the lid body 24 moves from the opening

22a to expose the opening 22a. Thereby, the contents can be taken out of or inserted into the container body 22 through the opening 22a.

(Third Embodiment)

FIGS. 11 to 14 show a container according to a third embodiment of the invention.

In this embodiment, a container 30 includes a container body 32 having an internal space, and a lid body 34 that can open and close an opening 32a of the container body 32. The container body 32 and the lid body 34 are noncircular when viewed in a longitudinal direction of the container 30 orthogonal to an opening surface of the opening 32a. In this embodiment, the noncircular shape has a circular portion and a sharp portion of a triangle integrally formed into a comet shape.

The container body 32 is closed at its bottom, and has, at its top opposite from the bottom, the opening 32a and a journaling portion 32b adjacent to the opening 32a. The journaling portion 32b is provided in parallel with the opening 32a, and forms a cylindrical shape having a notch 32c on one side. An axis of the journaling portion 32b is parallel to the direction orthogonal to the opening surface of the opening 32a. The opening 32a is positioned in the sharp portion of the noncircular shape.

On an outer peripheral surface of the journaling portion 32b, a circumferentially extending protruding portion 32d is

formed. A locking protrusion 32f is formed on an edge of the opening 32a of the container body 32.

The lid body 34 includes a cylindrical journaled portion 34a, and a lid portion 34b that covers the opening 32a. The lid portion 34b is positioned on the side of the sharp portion. Further, a plug 36 that closes a top of the lid portion 34b of the lid body 34 may be provided. The plug 36 may be omitted, or the plug 36 and the lid body 34 may be integrally formed.

On an inner peripheral surface of the journaled portion 34a, an annular recess 34e that engages the protruding portion 32d of the journaling portion 32b of the container body 32 is formed, so that the journaled portion 34a rotatably engages the journaling portion 32b. On the inner peripheral surface of the journaled portion 34a, a protrusion 34f (see FIG. 13) protruding radially inward is formed, and the protrusion 34f is placed in the notch 32c of the journaling portion 32b.

On a tip of the lid portion 34b, a locked portion 34d is formed so as to be locked to the locking protrusion 32f of the container body 32, and thus the lid body 34 is lockable to the container body 32.

The journaled portion 34a of the lid body 34 is journaled by the journaling portion 32b of the container body 32, and the lid body 34 can rotatably swing around the journaling portion 32b of the container body 32. A rotation range is a range of angles through which the protrusion 34f can move within the notch 32c. The protrusion 34f and the notch 32c constitute rotation range controller.

As described above, the container 30 configured as described above provides the operation and the advantage similar to those of the first and the second embodiments. As shown in FIGS. 11 and 13, in a state where the lid body 34 closes the opening 32a of the container body 32, the locked portion 34d is locked to the locking protrusion 32f. The lid portion 34b of the lid body 34 covers the opening 32a so that the contents of the container body 32 are safely contained in the internal space of the container body 32.

Then, the lid body 34 is rotated by holding the container body 32 and touching the sharp portion of the lid body 34 with one finger (for example, a thumb), thus the lid body 34 can be easily rotated around the journaling portion 32b.

The protruding portion 32d and the annular recess 34e engage with little play therebetween. Thus, a friction force generated between the lid body 34 and the container body 32 preferably stops the lid body 34 at the position where the hand is removed after the lid body 34 is rotated. When the lid body 34 is further rotated, the protrusion 34f moves to one of ends of the notch 32c to abut against one of wall surfaces of the journaling portion 32b as shown in FIG. 14, thus the lid body 34 cannot be further opened. In this state, the lid portion 34b of the lid body 34 moves from the opening 32a to expose the opening 32a. Thereby, the contents can be taken out of or inserted into the container body 32 through the opening 32a.

Each of the above described embodiments allows an easy operation with one hand, thus increasing operability. The container body and the lid body may be, of course, constituted by a plurality of parts, but the container can be constituted by at least the container body and the lid body, thus reducing the number of components.

While the principles of the invention have been described above in connection with specific embodiments, and particular modifications thereof, it is to be clearly understood that this description is made only by way of example and not as a limitation on the scope of invention.